

# MARINWOOD APARTMENTS SEWER CAPACITY STUDY

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**APRIL 12, 2024**

**121, 155, 175 & 197 MARINWOOD AVE.  
SAN RAFAEL, CA 94903  
APN 165-47-64; 165-471-65;  
165-471-69; 165-471-70**

**PROJECT #: 2023014  
PREPARED BY**

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CIVIL ENGINEERS • URBAN PLANNERS • LANDSURVEYORS • LANDSCAPE ARCHITECTS

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### ATTACHMENTS:

- Development Sewer Loading Calculations
- Preliminary Utility Plan with Unit allocation to each lateral

## ***INTRODUCTION***

121, 155, 175, & 197 Marinwood Ave (Project) are located ~400 feet southwest of the Miller Creek Road overpass of Highway 101 within the County of Marin. The Project totals 5.06 acres of parking and a central existing market. The existing sewer on site contributes to sewer main within Miller Creek Road which is located 600 feet to the north. The property is bound by the Casa Marinwood subdivision to the West, Miller Creek Road to the North, Highway 101 to the East and a bus depot to the South. The proposed buildout of the site will reconfigure existing parking, construct 1 residential building to the North of the market and 3 Residential buildings to the South of the Market.

## ***EXISTING CONDITIONS***

This site currently contains an existing ~15,000 square foot market within the center of the property which is surrounded by parking which formerly facilitated additional buildings throughout the project site which have been subsequently been demolished. The site is generally flat and surrounding sewer main is shallow. There is a 12" sewer main within Marinwood Avenue which extends to the neighboring properties to the southwest through the south half of this project. There is an inactive sewer lateral at the frontage of Building D, an active lateral connecting to the existing market which has a southerly stub towards the location of previously demolished buildings to the south of the market. There is an inactive lateral to the south of the market which must be removed as a condition of contaminated soil remediation to the south of the market.

## ***PROPOSED CONDITIONS***

This project will preserve the existing market, sewer lateral and paving on the west and east sides of the building. The existing lateral to Building D will be used for this project and replaced/upsized if required. The existing manhole in front of the market will be tied into to serve the north side of the Buildings B & C. The existing sewer manhole in Grande Paseo will be tied into to serve Building A, and the south half of Buildings B & C.

## ***DESIGN ASSUMPTIONS***

To facilitate gravity sewer from each building to the public sewer main, the private backbone sewer within the project site must be run at 0.5% slope and sewer laterals will be run at 1.5% slope per Las Gallinas Valley Sanitation District Construction standards. Due to the shallow depth of sewer within Marinwood Avenue and elevation of existing market, the sewer for Buildings B & C must be split to separate laterals to the north and south.

## ***CONCLUSIONS***

The proposed sewer main and laterals meet Las Gallinas Valley Sanitation District (LGVSD) Construction standards. This project's calculated sewer contribution to be added to the existing sewer main have been included within this report to be added to LGVSD sewer capacity modeling software for confirmation that the existing sewer system has sufficient capacity to facilitate this project.

**DEVELOPMENT SEWER CAPACITY  
CALCULATIONS**

**Marinwood Avenue Sewer Flows**  
**2023014**  
**April 12, 2024**

**Building D**

Use	Units; Area Units; sf	Density* People/unit	Population People	Demand Flow gppd	Average Day Flow		Peak load factor K	Design Flow		
					gpd	mgd		gpd	gpm	cfs
Apt - 3 br	10	2.25	23	125	2,813	0.003	1.8	5,063	3.52	0.01
Apt - 2 br	16	1.90	30	125	3,800	0.004	1.8	6,840	4.75	0.01
Apt - 1 br	7	1.90	13	125	1,663	0.002	1.8	2,993	2.08	0.00
Retail (sf)	1100	2.00	2	125	250	0.000	1.8	450	0.31	0.00
<b>Total</b>	<b>33</b>		<b>25</b>		<b>8,525</b>	<b>0.003</b>		<b>5,513</b>	<b>3.83</b>	<b>0.01</b>

\*Retail Density assumed to be 8 units per acre and 2 people per unit

**Building B & C - North**

Use	Units	Density People/unit	Population People	Demand Flow gppd	Average Day flow		Peak load factor K	Design Flow		
					gpd	mgd		gpd	gpm	cfs
Apt - 3 br	9	2.25	20	125	2,531	0.003	1.8	4,556	3.16	0.01
Apt - 2 br	6	1.90	11	125	1,425	0.001	1.8	2,565	1.78	0.00
Apt - 1 br	17	1.90	32	125	4,038	0.004	1.8	7,268	5.05	0.01
<b>Total</b>	<b>32</b>		<b>64</b>		<b>7,994</b>	<b>0.008</b>		<b>14,389</b>	<b>9.99</b>	<b>0.02</b>

**Building B & C South**

Use	Units	Density People/unit	Population People	Demand Flow gppd	Average Day flow		Peak load factor K	Design Flow		
					gpd	mgd		gpd	gpm	cfs
Apt - 3 br	4	2.25	9	125	1,125	0.001	1.8	2,025	1.41	0.00
Apt - 2 br	20	1.90	38	125	4,750	0.005	1.8	8,550	5.94	0.01
Apt - 1 br	12	1.90	23	125	2,850	0.003	1.8	5,130	3.56	0.01
<b>Total</b>	<b>36</b>		<b>70</b>		<b>8,725</b>	<b>0.009</b>		<b>15,705</b>	<b>10.91</b>	<b>0.02</b>

**Building A**

Use	Units	Density People/unit	Population People	Demand Flow gppd	Average Day flow		Peak load factor K	Design Flow		
					gpd	mgd		gpd	gpm	cfs
Apt - 3 br	8	2.25	18	125	2,250	0.002	1.8	4,050	2.81	0.01
Apt - 2 br	4	1.90	8	125	950	0.001	1.8	1,710	1.19	0.00
Apt - 1 br	12	1.90	23	125	2,850	0.003	1.8	5,130	3.56	0.01
<b>Total</b>	<b>24</b>		<b>48</b>		<b>6,050</b>	<b>0.006</b>		<b>10,890</b>	<b>7.56</b>	<b>0.02</b>

**Total Sewer Flow added by Marinwood Apts Development**

	<i>gpd</i>	<i>cfs</i>
Total Added Residential Sewer Flow =	46,496	0.072
Total Added Commercial Sewer Flow =	450	0.001
<b>Total Project Sewer Flow =</b>	<b>46,946</b>	<b>0.073</b>

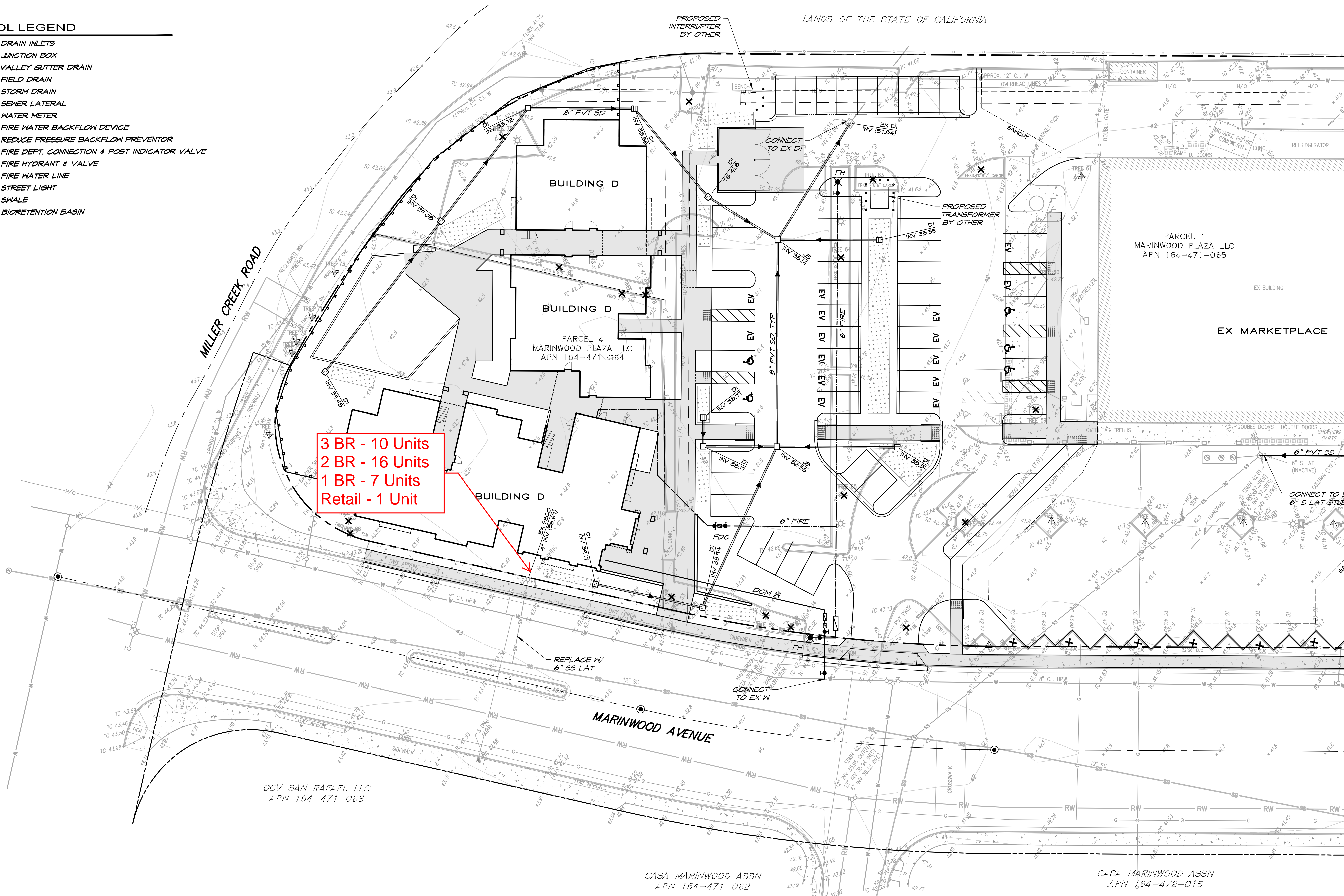
Abbreviations:  
*cfs* = cubic feet per second  
*gpd* = gallon per day  
*gppd* = gal/person/day  
*GSF* = gross square feet  
 1 *cf* = 7.48 gallons

**PRELIMINARY UTILITY PLAN  
WITH UNIT ALLOCATION TO EACH  
LATERAL**

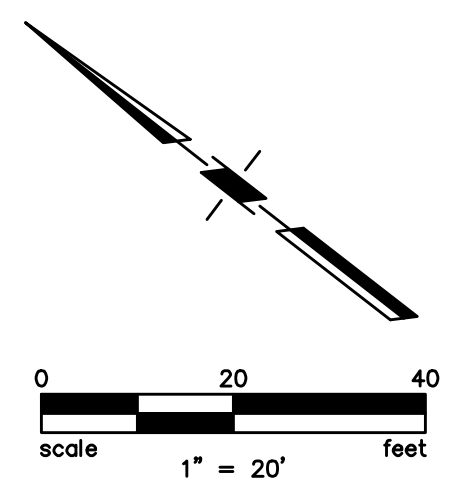
**SYMBOL LEGEND**

- ○ DRAIN INLETS
- JUNCTION BOX
- VALLEY GUTTER DRAIN
- FIELD DRAIN
- STORM DRAIN
- SEWER LATERAL
- WATER METER
- ▨ FIRE WATER BACKFLOW DEVICE
- ▨ REDUCE PRESSURE BACKFLOW PREVENTOR
- FIRE DEPT. CONNECTION & POST INDICATOR VALVE
- FIRE HYDRANT & VALVE
- FIRE WATER LINE
- ★ STREET LIGHT
- SWALE
- ▨ BIORETENTION BASIN

LANDS OF THE STATE OF CALIFORNIA



MATCH LINE - CONT. ON SHT. C-10



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**PRELIMINARY UTILITY PLAN - NORTH**

**MARINWOOD APTS. | MARIN COUNTY, CA**

**C.09**

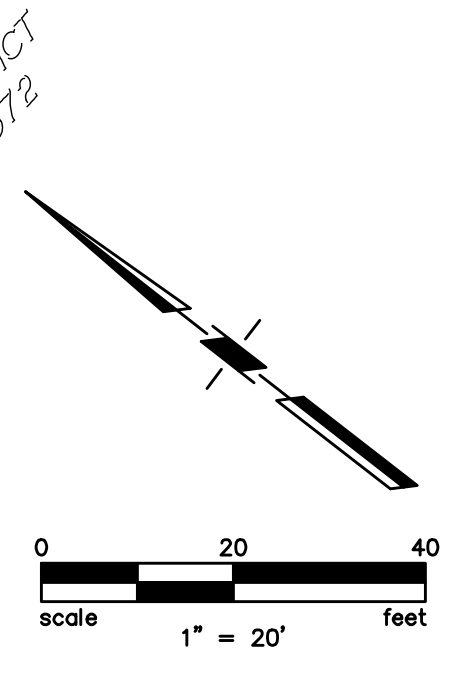
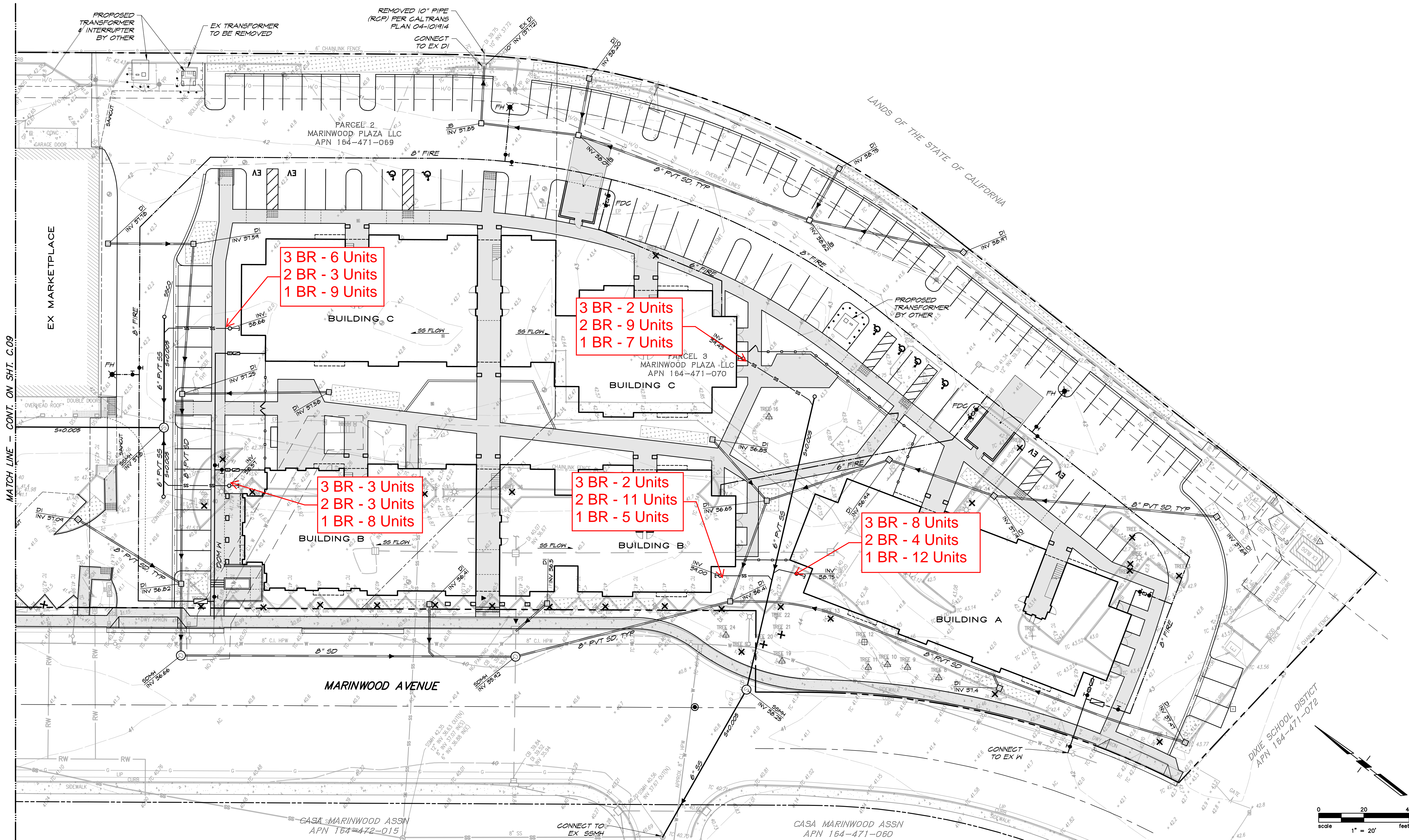
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**PRELIMINARY UTILITY PLAN - SOUTH**

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**C.10**

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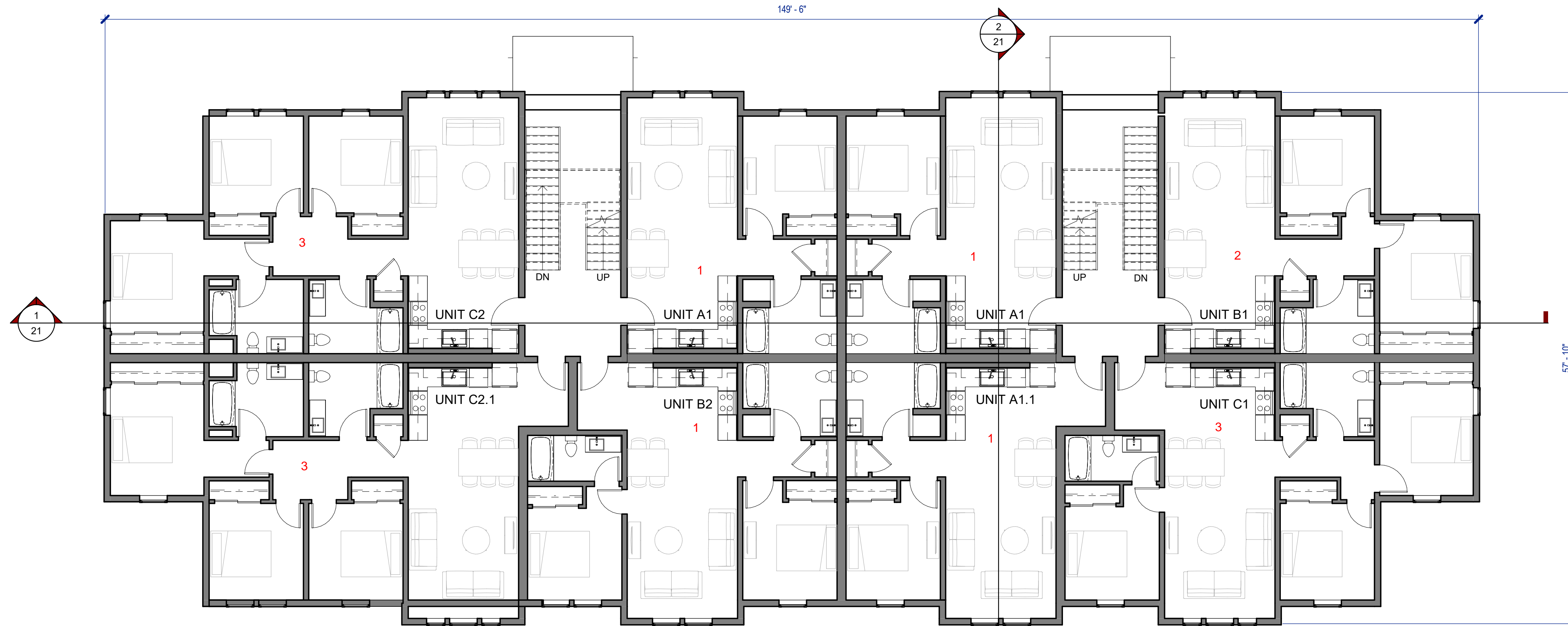
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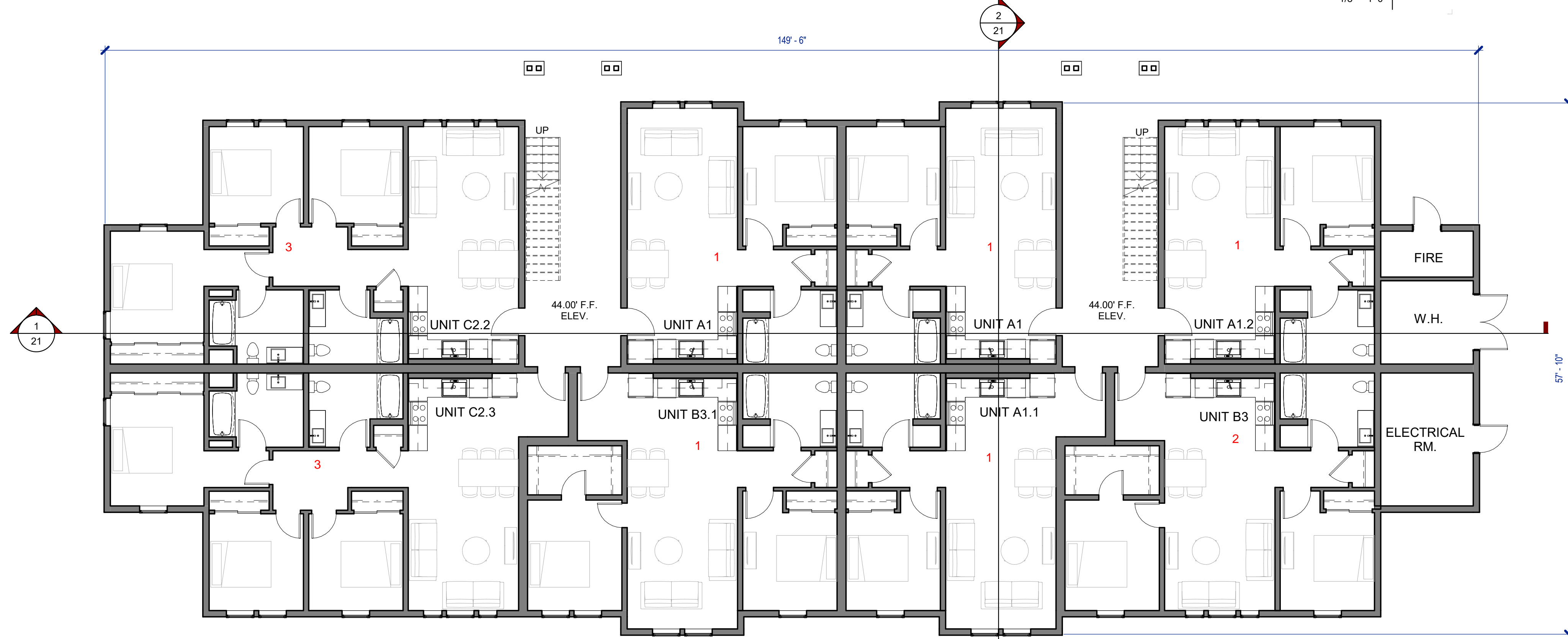
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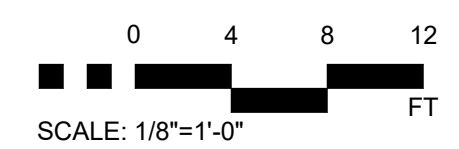
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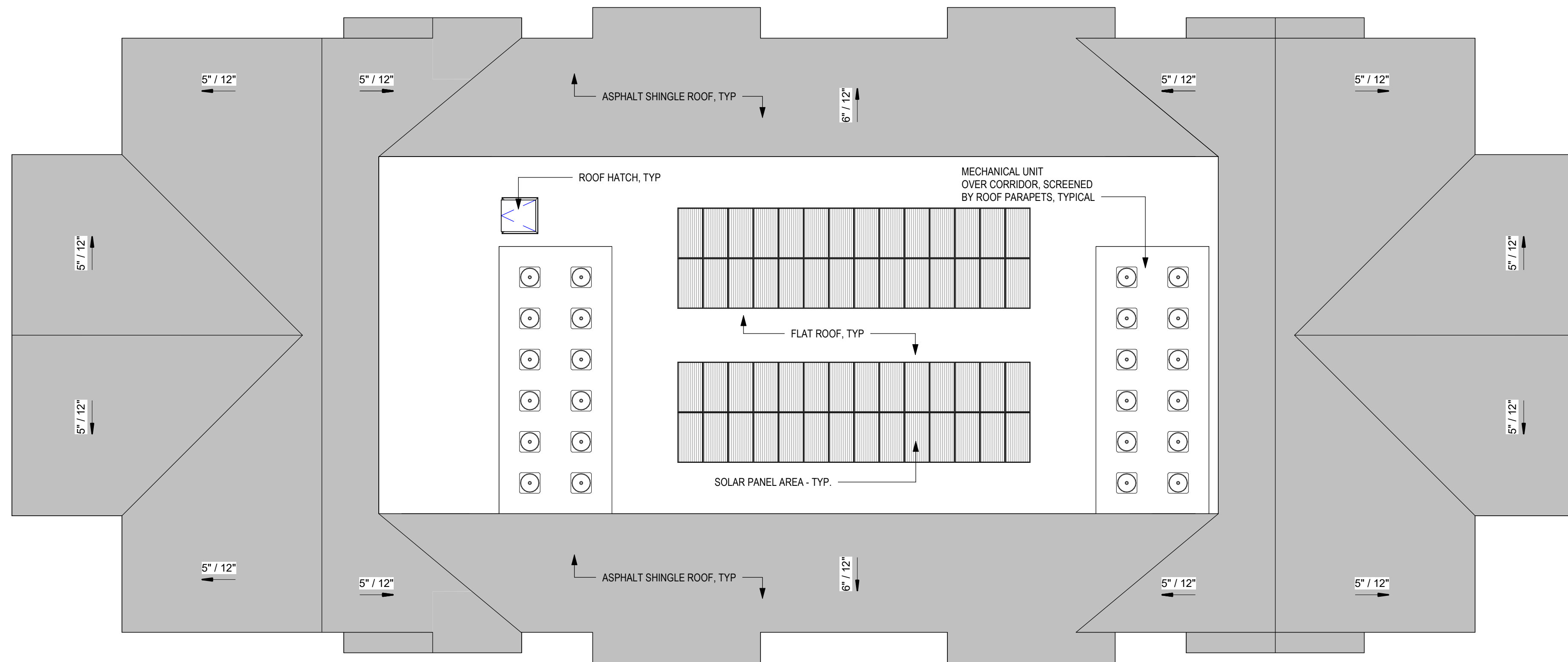


BUILDING A - SECOND FLOOR PLAN  
1/8" = 1'-0" 2

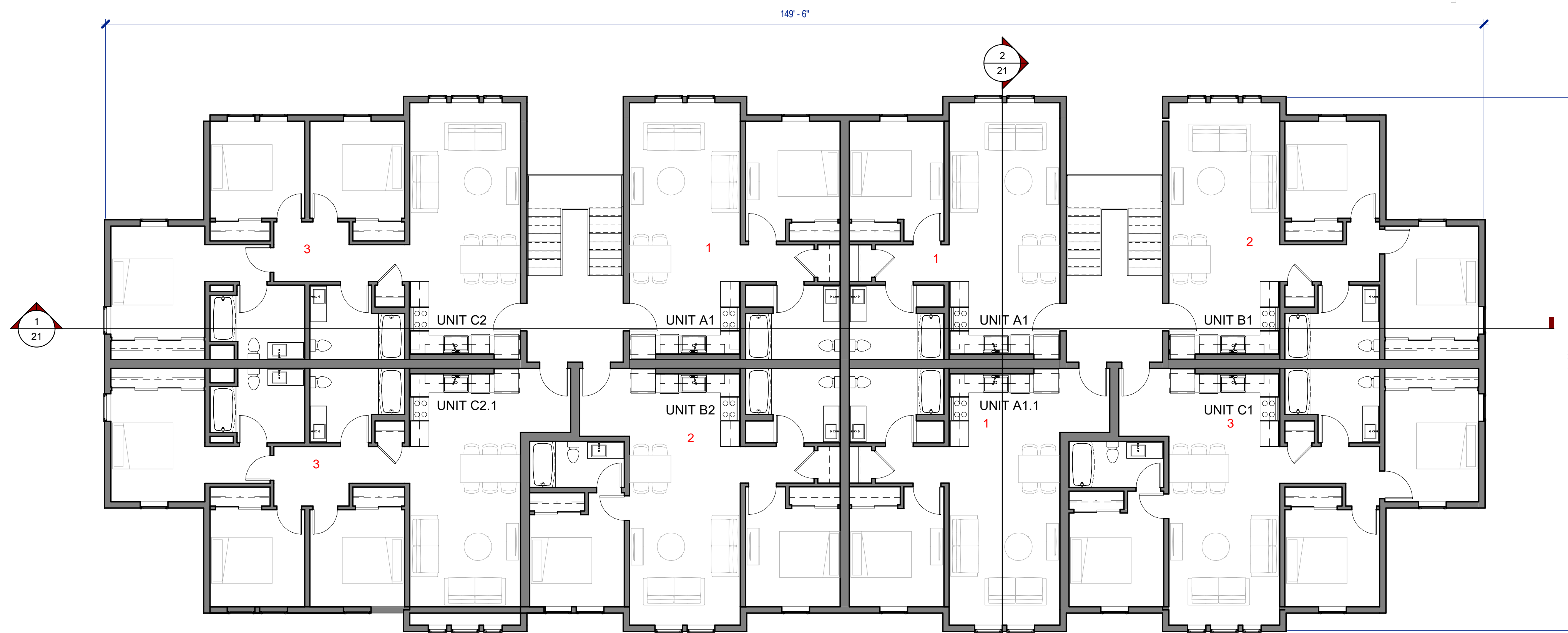


BUILDING A - FIRST FLOOR PLAN  
1/8" = 1'-0" 1

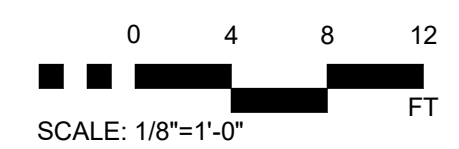


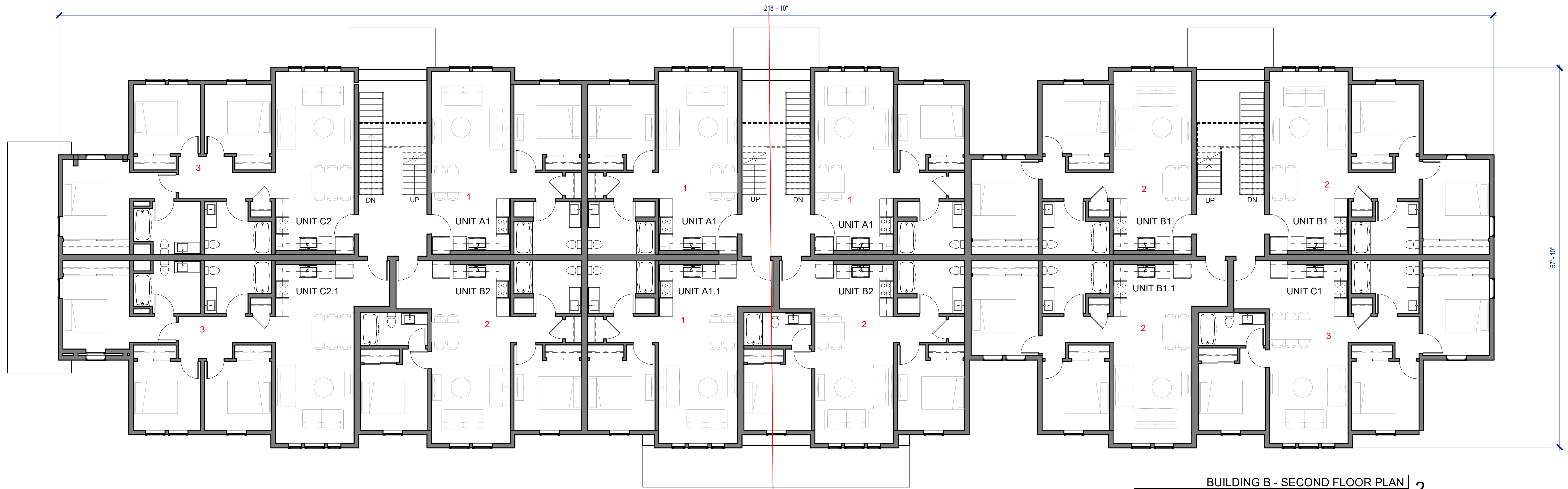


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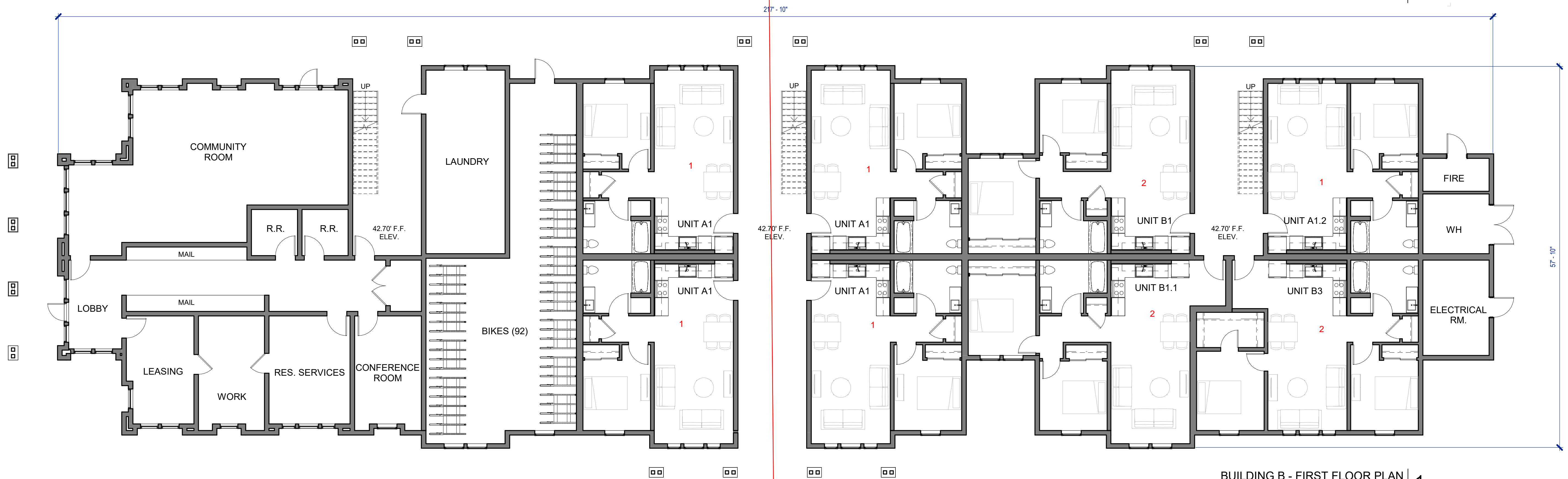


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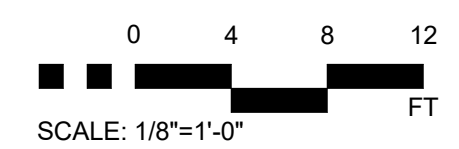


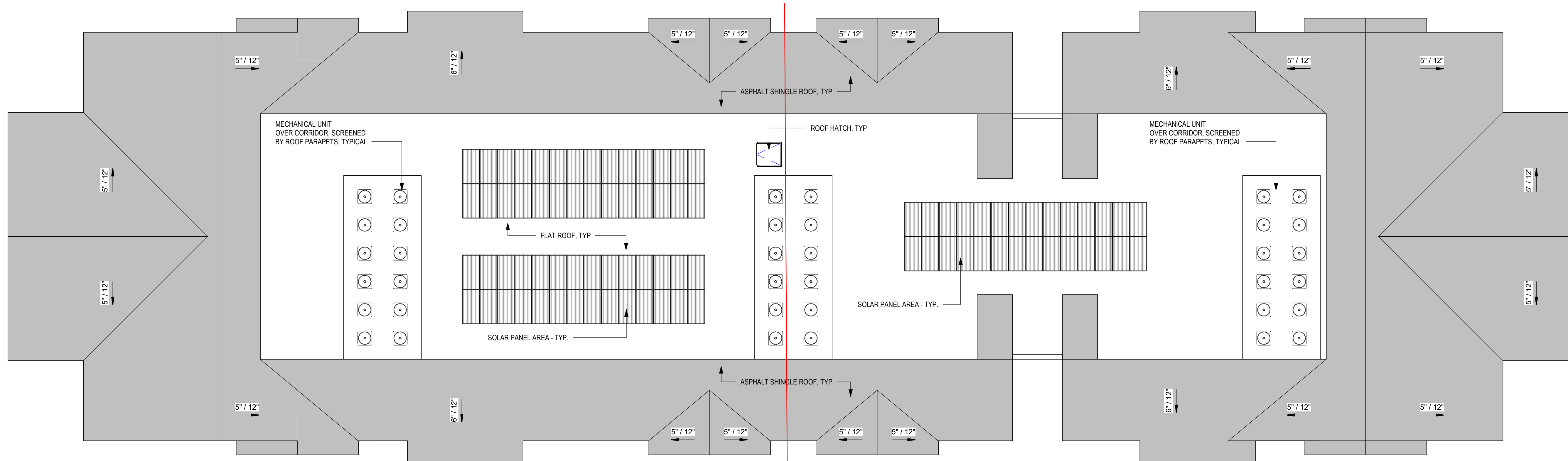


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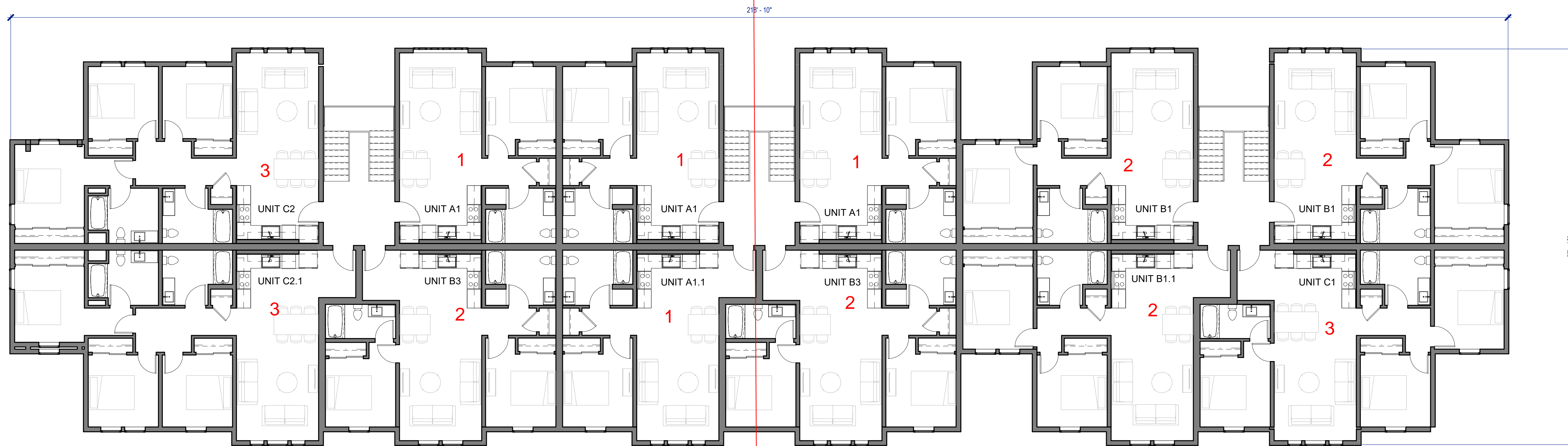


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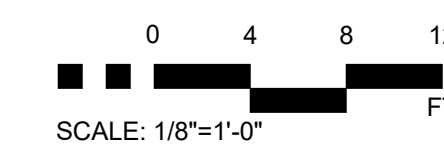


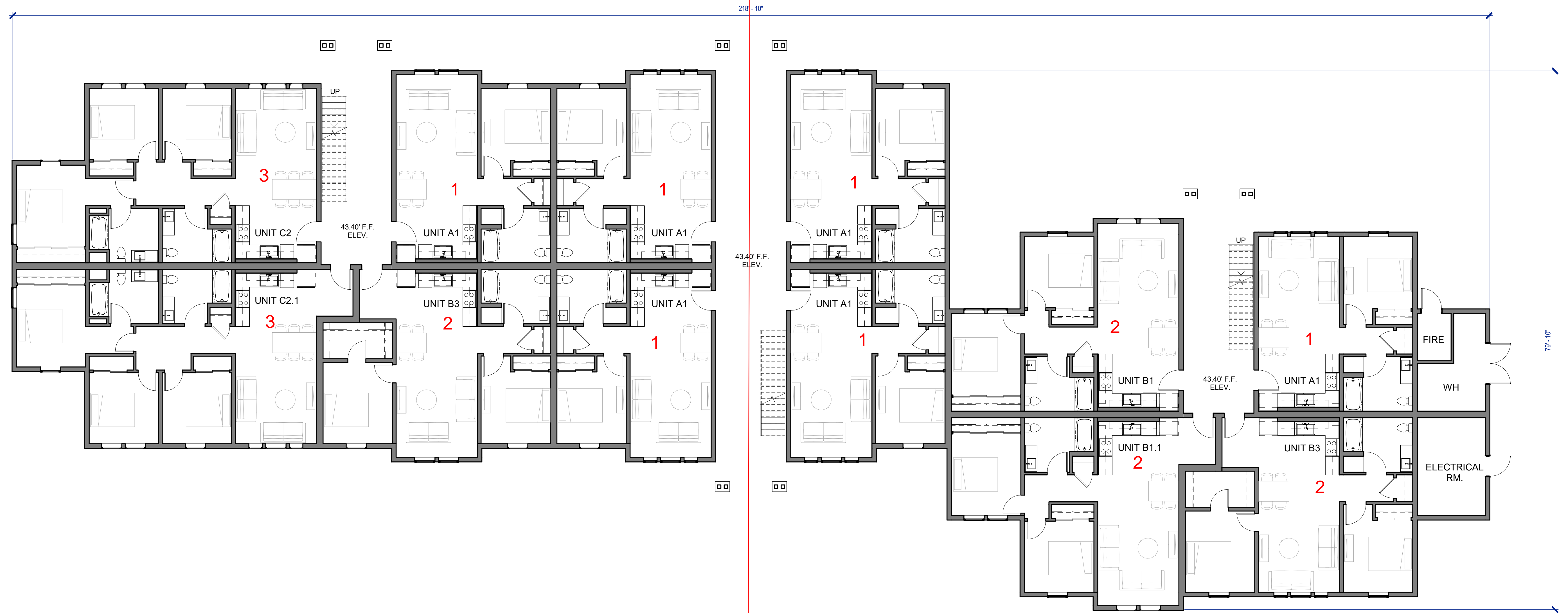


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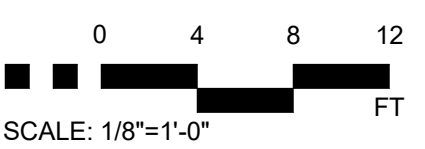


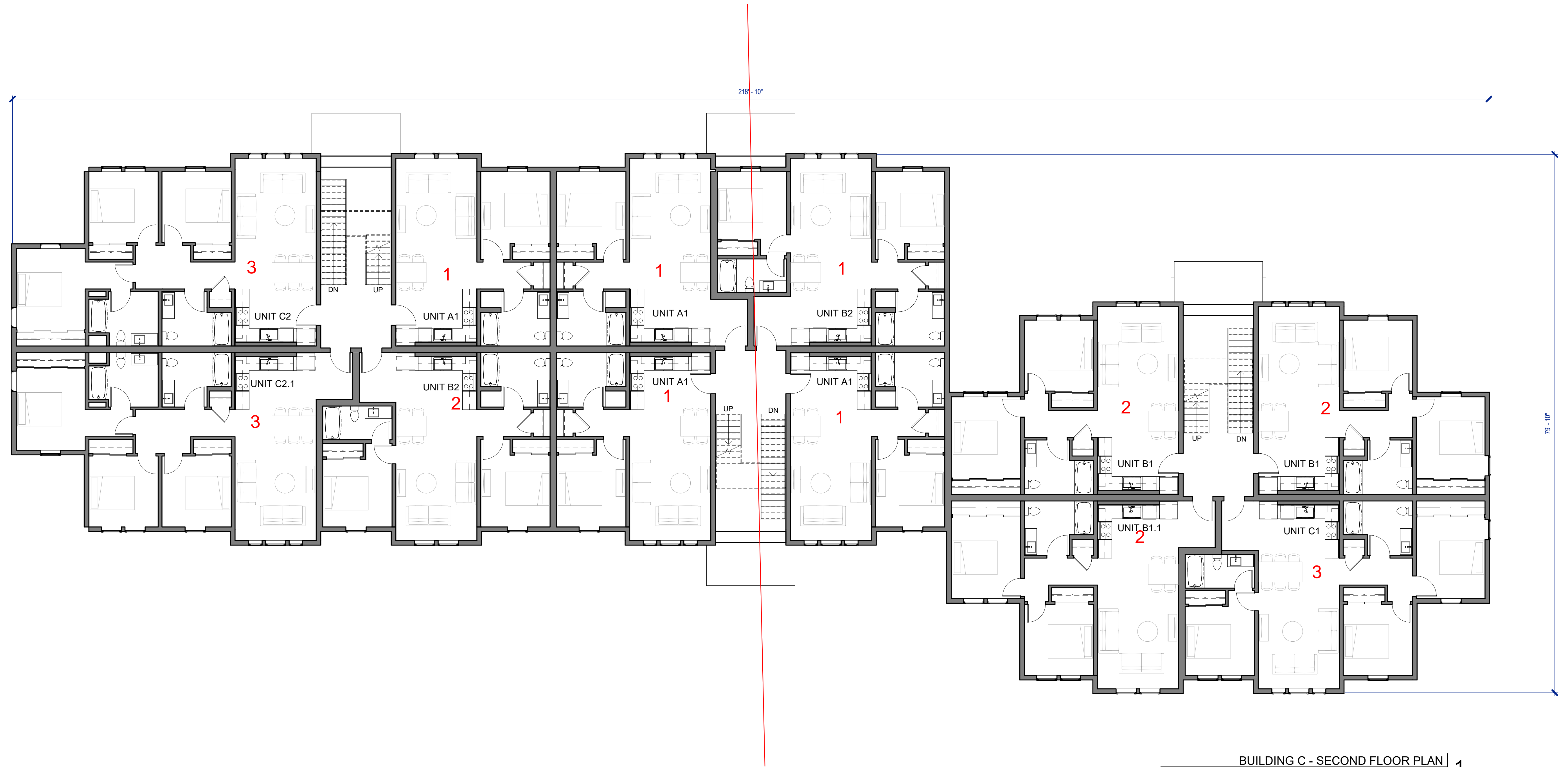
BUILDING B - THIRD FLOOR PLAN | 1  
1/8" = 1'-0"



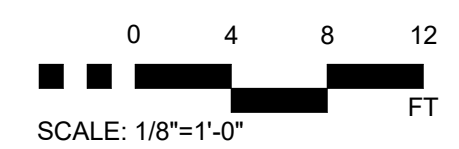


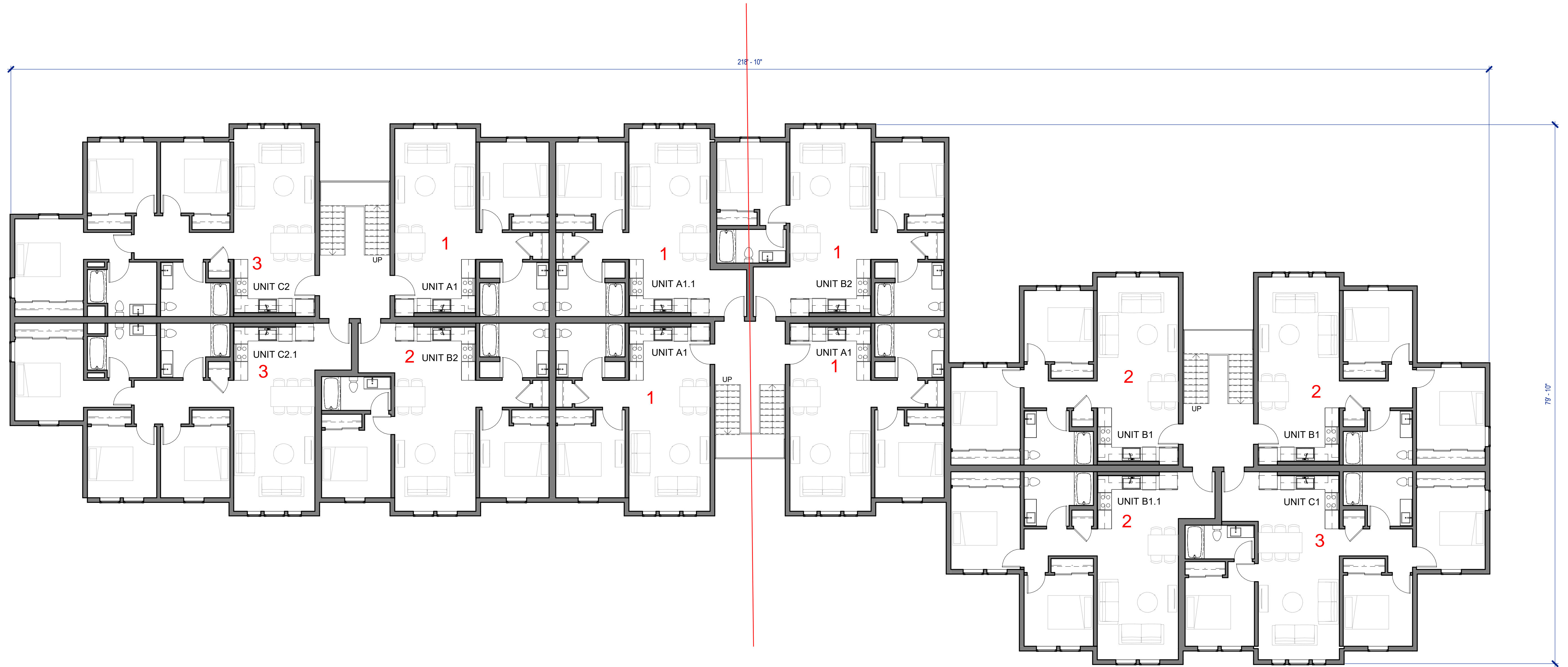
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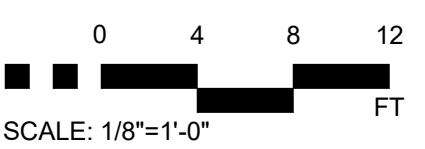


BUILDING C - SECOND FLOOR PLAN | 1  
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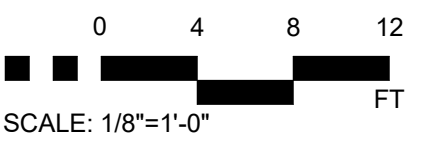
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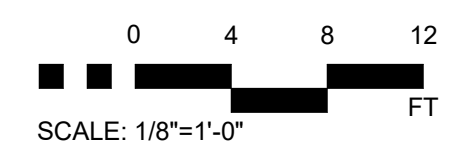


BUILDING D - FIRST FLOOR PLAN | 1  
1/8" = 1'-0"





BUILDING D - SECOND FLOOR PLANS | 1  
1/8" = 1'-0"





BUILDING D - THIRD FLOOR PLAN | 1  
1/8" = 1'-0"

